Volunteer Lake Assessment Program Individual Lake Reports

LONG POND, LEMPSTER, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	1,154	**Max. Depth (m):**	20.3	**Flushing Rate (yr^1):**	0.9
Surface Area (Ac.):	120	**Mean Depth (m):**	6	**P Retention Coef:**	0.65
Shore Length (m):	4,500	**Volume (m^3):**	2,955,500	**Elevation (ft):**	1548

TROPHIC CLASSIFICATION

Year	Trophic class
1984	OLIGOTROPHIC
2002	OLIGOTROPHIC

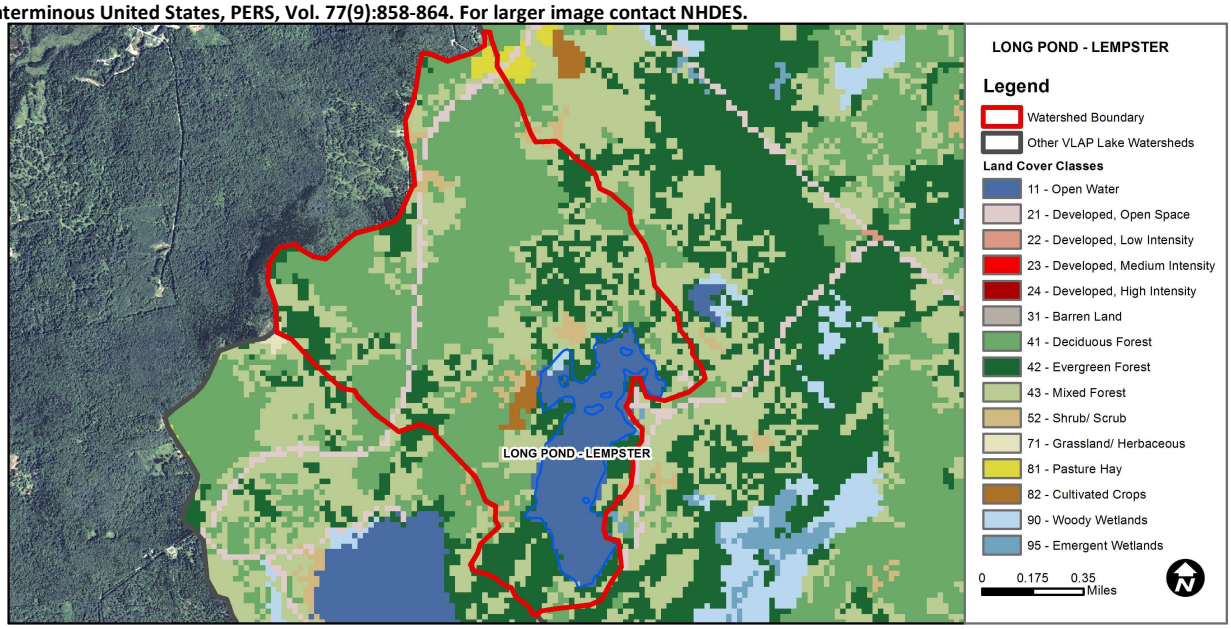
KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the DRAFT 2014 305(b) report on the status of N.H. waters, and are based on data collected from 2004-2013. Detailed waterbody assessment and report card information can be found at www.des.nh.gov/organizations/divisions/water/wmb/swqa/index.htm

Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Very Good	The calculated median is from 5 or more samples and is <= 1/2 indicator and the chlorophyll a indicator is okay.
	pH	Bad	>10%, with a minimum of 2, samples exceed criteria, with 1 or more by a large margin.
	Oxygen, Dissolved	Encouraging	There are < 10 samples with 0 exceedances of criteria. More data needed.
	Dissolved oxygen satura	Encouraging	There are < 10 samples with 0 exceedances of criteria. More data needed.
	Chlorophyll-a	Very Good	The calculated median is from 5 or more samples and is <= 1/2 indicator.
Primary Contact Recreation	Escherichia coli	Very Good	Where there are no geometric means, all bacteria samples are < 75% of the geometric mean. Where there are geometric means all single bacteria samples are < the SSMC and all geometric means are < geometric mean criteria.
	Chlorophyll-a	Very Good	There are a total of at least 10 samples with 0 exceedances of indicator.

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	12.9	Barren Land	0	Grassland/Herbaceous	0.1
Developed-Open Space	1.98	Deciduous Forest	39.4	Pasture Hay	0.48
Developed-Low Intensity	0	Evergreen Forest	18.73	Cultivated Crops	0.87
Developed-Medium Intensity	0	Mixed Forest	22.57	Woody Wetlands	0.24
Developed-High Intensity	0	Shrub-Scrub	2.32	Emergent Wetlands	0.02

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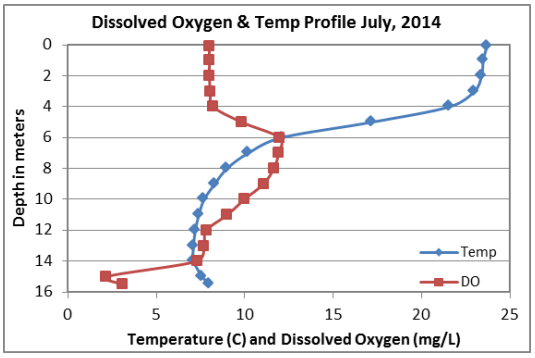
2014 Data Summary

Observations and Recommendations (*Refer to Table 1 and Historical Deep Spot Data Graphics)*

- **Chlorophyll-a:** Chlorophyll levels were very low in July and much less than the state median. Historical trend analysis indicates highly variable chlorophyll levels since monitoring began.
- **Conductivity/Chloride:** Deep spot and tributary conductivity levels were very low and much less than the state median. Historical trend analysis indicates significantly decreasing (improving) epilimnetic (upper water layer) conductivity since monitoring began.
- **E. coli:** Back Cove and Public Beach E. coli levels were very low and much less than the state standards for public beaches (88 cts/100 mL) and surface waters (406 cts/100 mL).
- **Total Phosphorus:** Deep spot phosphorus levels remained low in 2014 and much less than the state median. Historical trend analysis indicates relatively stable epilimnetic phosphorus with moderate variability between years. North Inlet and Outlet phosphorus level also remained low in July.
- **Transparency:** Transparency was good in 2014 and much better than the state median, however was lower than average for the pond. Wave action likely affected viewing the Secchi disk and the transparency was much better when the viewscope (VS) was utilized (8.5 meters). Historical trend analysis indicates highly variable transparency since monitoring began.
- **Turbidity:** Deep spot, North Inlet and Outlet turbidities were low during July.
- **pH:** Deep spot pH levels were less than the desirable range 6.5-8.0 units and have been historically low and potentially critical to aquatic life. Historical trend analysis indicates highly variable epilimnetic pH since monitoring began.
- **Recommended Actions:** Additional samples were collected at another area of the lake reportedly deeper than the historical deep spot. Data collected at this site were no different than the data from the normal deep spot station. If you are interested in borrowing the GPS Fathometer to update the bathymetric map of the pond, please contact the VLAP Coordinator. Water quality is good and has remained stable since monitoring began, however we recommend increasing the monitoring frequency to two to three times per summer to better assess seasonal and historical trends and reduce data variability. Keep up the great work!



NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.
Chloride: > 230 mg/L (chronic)
E. coli: > 88 cts/100 mL – public beach
E. coli: > 406 cts/100 mL – surface waters
Turbidity: > 10 NTU above natural level
pH: between 6.5-8.0 (unless naturally occurring)

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.
Alkalinity: 4.9 mg/L
Chlorophyll-a: 4.58 mg/m^3
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 m
pH: 6.6

Station Name	Table 1. 2014 Average Water Quality Data for LONG POND								
	Alk. mg/l	Chlor-a ug/l	Cond. uS/cm	E. Coli #/100ml	Total P ug/l	Trans. m		Turb. ntu	pH
						NVS	VS		
Epilimnion	0.7	1.62	13.5		3	7.00	8.50	0.49	6.15
Metalimnion			14.2		3			0.60	5.73
Hypolimnion			15.3		3			0.53	5.58
Back Cove				10					
North Inlet			13.8		6			0.34	5.57
Outlet In Stream			14.0		7			0.63	5.74
Public Beach				6					

Historical Water Quality Trend Analysis

Parameter	Trend	Explanation	Parameter	Trend	Explanation
Conductivity	Improving	Data significantly decreasing.	Chlorophyll-a	Stable	Trend not significant; data highly variable.
pH (epilimnion)	Stable	Trend not significant; data highly variable.	Transparency	Stable	Trend not significant; data highly variable.
			Phosphorus (epilimnion)	Stable	Trend not significant; data moderately variable.